



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,373	01/30/2004	Toshihiko Tsuji	1232-5269	7890
27123	7590	03/28/2006	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			RUTLEDGE, DELLA J	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/769,373	Applicant(s) TSUJI, TOSHIHIKO (Pw)	
	Examiner D. Rutledge	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings filed 30 January 2004 are acceptable for examination.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 2, 5-7, 10 – 13, 17, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakami et al. (US Pat No. 5,581,605).

In regards to claims 1, 2, 18: In Fig. 28 and col. 17 – 21, the reference discloses an illumination optical system (1, 15 – 17b) for an exposure apparatus. The mirror 16 converts the light into approximately parallel light. The first and second mirrors 17a, 17b are symmetrical with the optical axis. The light from the first mirror 17b receives light from the source 15 and introduces the light to the second mirror 17a. The light from the second mirror 17a is fed through the opening of the first mirror 17b.

In regards to claims 2, 17: a reflection integrator 1 forms plural secondary light sources and the second mirror superposes the light on the object, mask 4.

In regards claims 5, 16: the mirror 17b condenses the light.

In regards claim 5: the first mirror 17b is concave and the second mirror is convex.

In regards claim 7: the integration reflector 1 has plural concave or convex cylindrical surfaces. See Figs. 4 – 7.

Art Unit: 2851

In regards to claims 10 – 13: col. 20, lines 33 to col. 21, line 7 discloses forming arc shaped illumination areas and the angles used.

In regards claim 17, the light source 15 emits light near the optical axis.

In regards claim 21: the reference fabricates the device using the steps claims, exposure and development. Development is discussed in col. 22, lines 20 - 25.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (US Pat. No. 5,581,605) in view of Muys et al. (US Pub. No. 2004/0080815).

In regards claim 8: Murakami et al. have the basic apparatus, but do not disclose a cooling system for the first and second mirrors. At the exposure wavelengths used, it is known that heat is generated in the optical elements. Muys et al. broadly teach of conveying a cooling fluid through a channel in the holder of an optical element to cool the element. One of ordinary skill in the art would be motivated to use the teaching of Muys et al. to cool the mirrors in the Murakami et al. exposure apparatus since excess heat will affect the transmission of the light rays.

In regards claim 9: One of ordinary skill in the art adapting the teaching of Muys et al. to the illumination optical system of Murakami et al. would use the holding means of

Art Unit: 2851

whatever type of optical element is being cooled; therefore, is a rod was used as the supporting or mounting means, a channel would be formed in the rod.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al.

The reference does not disclose the elements claimed, but the embodiments shown in the Murakami et al. may not show every element in the actual optical system. One of ordinary skill in the art would know how to add elements that would further control the aberrations and other optical errors to obtain a more accurate image and would add other needed elements to the system.

Response Data

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


D. Rutledge
Primary Examiner
Art Unit 2851

dr
3/21/06